Defense Innovation Center

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Decision Advantage: An Assessment of the Current State and Future Trajectory of U.S. Joint Warfighting

BY *Mark Theby, Ph.D.*

About the Defense Innovation Center

The Defense Innovation Center is dedicated to the rigorous study and strategic advancement of innovation across the U.S. military and the broader defense sector. By analyzing emerging technologies, novel operational concepts, and acquisition processes, the Center works to identify and overcome barriers to progress. The research and analysis presented in this paper stem from the Center's core mission: to provide actionable insights that help accelerate the development and fielding of critical capabilities, ensuring the United States maintains its decisive technological edge.

About the Author

For over 15 years, Dr. Mark Theby has operated at the demanding intersection of technology and national security. He gained his subject-matter expertise within the U.S. Intelligence Community and the Department of Defense, where he acquired a reputation for creating innovative, mission-focused, and executable solutions to the Nation’s critical security challenges. Dr. Theby focuses on the strategic fusion of innovation and critical technology, expanding the understanding of emerging capabilities and employing these capabilities to produce impactful outcomes that safeguard the Nation.

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Executive Summary

The Department of War (DoW) is engaged in a generational transformation of its warfighting paradigm, driven by the resurgence of strategic competition with peer adversaries. This report provides a comprehensive policy analysis of the current state and future trajectory of this transformation, centered on the Combined Joint All-Domain Command and Control (CJADC2) initiative. While the DoW has made tangible progress—most notably achieving a "minimum viable capability" (MVC) in early 2024 and deploying it for operational use—significant strategic, technical, budgetary, and cultural challenges remain. The transition from a platform-centric to a data-centric model of warfare represents a monumental undertaking that requires not only technological innovation but also a fundamental rewiring of the Department's governance, acquisition, and operational processes.

This analysis posits that the CJADC2 concept is a necessary and strategically sound response to the multi-domain, high-tempo threats posed by competitors like China and Russia, who are developing their own integrated "kill webs." The establishment of the Chief Digital and Artificial Intelligence Office (CDAO) has provided a crucial central governance body to align disparate service-led efforts, including the Army's Project Convergence, the Navy's Project Overmatch, and the Air Force's Advanced Battle Management System (ABMS). A robust campaign of experimentation, from the CDAO's Global Information Dominance Experiments (GIDE) to large-scale joint exercises like Valiant Shield, is iteratively developing and de-risking the core tenets of CJADC2: a data-centric architecture, artificial intelligence-enabled decision support, Zero Trust security, and an open systems approach. The formal inclusion of "Combined" in the initiative's title correctly prioritizes the integration of allies and partners as a core design principle, a necessity for any future conflict.

The path to achieving decision advantage at scale, however, is fraught with peril. The CJADC2 enterprise is vulnerable to the friction between its agile, software-centric development model and the DoW's rigid, industrial-age budget and acquisition systems. The persistent threat of Continuing Resolutions looms over the program, threatening to stifle momentum and delay the fielding of critical capabilities. Furthermore, systemic challenges in sustaining complex hardware, as highlighted by recent Government Accountability Office reports, foreshadow even greater difficulties in sustaining the perpetually evolving software and data infrastructure of CJADC2. Perhaps most critically, the centrifugal forces of service-parochialism remain a constant threat to the jointness that is the very essence of the initiative.

This report concludes that while the foundational concepts of CJADC2 are sound and initial progress is tangible, the initiative is at a critical inflection point. Sustained, high-level focus from DoD leadership, coupled with stable, flexible funding from Congress and a deeper partnership with commercial innovators, is essential. Without these, the DoD risks building a 21st-century warfighting concept on a 20th-century foundation, ceding the ultimate advantage to adversaries who are adapting to the information age with greater speed and focus.